deviations and Cronbach's alpha will be used to evaluate the reliability and sensitivity of the SMM.

Implications: This is a beginning program of research on visual art and healing environments. The intervention is patient centered and congruent with core nursing values of promoting health, healing, and hope. If better understood, patient preferences could enhance environments, thereby improving health outcomes.

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PREDICTIVE EFFECTS OF MALNUTRITION INDICATORS FOR MORBIDITY AND MORTALITY AMONG BLOOD AND MARROW TRANSPLANTATION RECIPIENTS: A RETROSPECTIVE CHART REVIEW

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The purpose of this study was to identify complications related to the blood and marrow transplantation (BMT) process, the presence of malnutrition among patients who received myeloablative allogeneic BMT, and the predictive effects of malnutrition indicators to the outcomes of BMT. Four research questions related to malnutrition were investigated: (a) malnutrition indicators and outcomes of BMT; (b) body mass index (BMI) and incidences of transplant related mortality; (c) degree of mucositis and its relationship to transplant related infections; and (d) predictive ability of BMI and serum albumin levels and infection incidences during 100 days post BMT.

The conceptual framework chosen for this study is based on the pathways of cancer aggression (1977) which demonstrate how cancer interferes with multiple organs and function leading to host depletion, morbidity, and mortality. This study is a retrospective chart review from 110 electronic medical records of patients diagnosed with Acute Myeloid Leukemia (AML) or Myelodysplastic Syndrome (MDS), who received the same regimen of myeloablative, allogeneic BMT from one cancer institution during August 2005 to June 2008.

Findings revealed that there were subjects who experienced weight loss (68%) and had hypoalbuminemia (97.3%), indicating malnutrition among 110 post-allogeneic BMT recipients during the 100 days post-BMT. Weight loss was not related to transplant mortality but it significantly contributed to an increase in transplant related infections. Hypoalbuminemia was significantly related to both transplant related mortality and infection especially when serum albumin dropped below 3 gm/dL. The body mass index was not related to transplant related mortality during 100 days post BMT. Although the majority of subjects (71.8%) experienced mucositis to the point that it interfered their eating and swallowing solid food, severity in mucositis did not contribute to transplant related infection. Both BMI and hypoalbuminemia were significant predictors to transplant related infection during 100 days post BMT.

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ASSESSING QUALITY OF LIFE (QOL), SPIRITUAL WELL-BEING, AND USE OF RESOURCES THROUGHOUT THE HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT) PROCESS

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Hematopoietic Stem Cell Transplant (HSCT) recipients continue to report quality of life (QOL) issues post transplant. A descriptive study using a longitudinal design was completed at one institution. The primary goal of the study was to describe QOL, spiritual well-being, and use of resources pre-transplant, one month, three months, and six months after transplant in HSCT recipients.

A conceptual model developed by Ferrell et al (1992a) described how HSCT impacts four domains of QOL: physical, psychological, social, and spiritual well-being. This study utilized three tools to assess QOL (FACT-BMT (Version 4)), spiritual well-being (FACIT-SP-12) and the use of resources (a resource questionnaire developed by the researchers). The resource questionnaire was tested for clarity, readability, and content validity.

An IRB approved informed consent was obtained. Patients were asked to complete baseline questionnaires and a demographic form pre-transplant. Follow-up packets were mailed or provided in the outpatient clinic at 1 month, 3 months, and 6 months. An addressed stamped envelope was provided. In order to maintain confidentiality, the PI assigned each participant a unique alphanumeric code that appeared at the top of each page of each form.

Complete data was obtained on 67 of 161 consented participants and incomplete data was obtained on 94 of the 161. Of the 67 who completed all the forms, 59% were male; 94% were Caucasian; 68.6% were married; all had at least a high school education and 41.7% attended school more than 12 years.

Overall QOL decreased ($p = 0.01$) between baseline score (mean 103.7) and day +30 (mean 97.2), day +90 (mean 105.0) slightly exceeded baseline ($p = 0.65$) and by day +180 (mean 110.2) significantly exceeded baseline scores ($p =< 0.001$). Spiritual well being mean baseline score (37.4) to day +180 (37.0) did not change ($p = 0.72$ to $p = 0.98$). Overall use of resources increased ($p = 0.02$) between baseline score (14.3) and day +30 (15.8), day +90 (14.3) and decreased below baseline by day +180 (13.1) ($p =< 0.001$). Although QOL and resource utilization increased with HSCT, scores returned to baseline within 6 months post transplant.

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THE QUALITY OF THE ADULT CAREGIVER-RECIPIENT RELATIONSHIP MAY BUFFER CAREGIVER BURDEN DURING ALLOGENEIC TRANSPLANTATION

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Caregivers are critical partners in allogeneic transplantation (HSCT) recipients' treatment and recovery. Although many transplant caregivers report significant emotional distress, factors that might serve to buffer the impact of this experience on their lives are not well understood. The purpose of this analysis is to examine the quality of the HSCT caregiver-recipient relationship and its association to caregiver perceived burden.

Methods: Cross-sectional data were drawn from HSCT recipients and caregivers preparing for HSCT from a longitudinal study. Measures include the Family Caregiving Inventory (FCI) Mutuality Scale, Caregiver Reaction Assessment (CRA), Distress Thermometer (DT), and self-reported demographic data.

Results: Adult ($M = 52.1 \pm 13.3$ years) caregivers ($N = 111$) were predominantly female (73.0%), and spouse to the HSCT recipient (45.9%). Fifty-three (47.7%) were sole caregivers while 58 (52.2%) were members of a caregiver 'team'. Adult ($M = 46.4 \pm 14.4$ years) HSCT recipients were predominately male (62.3%), preparing for a reduced intensity HSCT (84.4%). Caregiver mutuality was significantly related ($p < 0.05$) to all aspects of caregiver burden except finances ($p = 0.113$). Caregivers with higher mutuality reported less impact on self-esteem, health, schedule and sense of abandonment by family. Higher recipient mutuality was also related to less impact on caregiver self-esteem ($p < 0.05$). Greater agreement on perceived mutuality was related to less impact on caregiver self-esteem ($p < 0.001$) and finances ($p < 0.05$). Caregivers with less burden reported lower levels of self-reported distress ($p < 0.05$).

Conclusion: Results suggest that caregivers who perceive good relationship quality with HSCT recipients experience less burden. Assessments and interventions directed at understanding relationship concerns might improve outcomes for caregivers including minimizing distress.

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REDUCING OUTPATIENT BMT CLINIC VISIT TIMES

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As our health care environment faces increasing costs, high demands, and shifts towards outpatient care, facilities are forced to reassess their operations. To manage a successful clinic, a focus must be placed on efficient yet safe patient care delivery. Patient satisfaction plays an important part of this reassessment. In our pediatric BMT clinic, patients receive a variety of clinical care support including f/u exams, lab draws, central line care, short infusion therapies and new patient consults. Literature review finds that most research has focused on studying scheduling options to reduce visit times in the outpatient setting. Our improvement project was focused on reducing overall patient visit time through changes that impacted patient flow. An Improvement Science approach was initiated by staff and initially they looked at average clinic visit times (time of arrival to time of discharge) for new and follow-up visits in the BMT clinic from January - March, 2010. The staff also looked at the past parent satisfaction survey data from our outpatient pediatric BMT clinic which revealed that 65% of families felt wait times in exam rooms were not acceptable. The overall aim of this project focused on decreasing average clinic visit time for new and follow-up BMT patients by 25%. Key drivers were identified as accurately scheduled provider templates, adequate staffing, clear role responsibilities/team work, accurate communication handoff and timely discharge documentation. Key interventions included placing an APN in the clinic provider template, developing a Flow Lead RN role with triage and implementing the pod nursing care delivery system. Visit time data was extrapolated and placed on a run chart to show improvements made throughout the last 6 months. Run chart data showed a shift in the mean and a reduction in overall visit time for new and follow-up patients. Median new visits were reduced from 241 to 221 minutes. The median follow-up visits were reduced from 209 to 167 minutes. Families, staff and physicians have commented positively on the interventions. Consistent handoffs of care/communication have led to a safer environment for patients. We are continuing to test, implement and evaluate changes to reduce visit time and increase family satisfaction as we work to meet the goals set with this improvement project.

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PREVENTION OF DMSO-RELATED NAUSEA AND VOMITING BY PROPHYLACTIC ADMINISTRATION OF ONDANSETRON FOR PATIENTS RECEIVING AUTOLOGOUS CRYOPRESERVED PERIPHERAL BLOOD STEM CELLS

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Background: DMSO (dimethyl sulfoxide) is frequently used as a cryopreservative for peripheral blood stem cells (PBSCs). Common side effects of this chemical include nausea, vomiting, abdominal cramping, coughing and throat irritation. A comprehensive literature search using PubMed and CINAHL failed to reveal any studies investigating the benefit of antiemetics for preventing or reducing DMSO-induced nausea or vomiting.

Study design: A pilot study was conducted to determine whether a single 16mg intravenous dose of ondansetron could decrease the degree of nausea and episodes of emesis in patients receiving autologous PBSCs cryopreserved in DMSO. Fifty patients scheduled to receive an autologous transplant in an ambulatory NCI-designated comprehensive cancer center were enrolled. Nausea was rated using the MAASC nausea scale (0-10) at the following time points: upon arrival to the Infusion Room, prior to the ondansetron administration, prior to each cryopreserved bag, and at the end of the last bag. Episodes of emesis were documented. Results would be compared to an (unpublished) study examining the side effects of DMSO on 60 autologous HSCT patients previously conducted by this investigator.

Results: Forty-nine patients were evaluable. Compared to the historical control group, there were no statistically significant differences in nausea and vomiting when examining age, disease, gender, and chemotherapy regimens. There was no correlation between infusion rate and nausea scores, or between individual nausea scores and those patients who vomited. A trend ($p = 0.05$) was noted for increased nausea scores as the number of bags increased.

Discussion: Only 9/49 (18%) of the study patients had nausea ($p < .0001$) compared to 58% from the control group. In addition, only 9/49 (18%) vomited compared to 33% in the control group.

Conclusion: Although this was a small, non-blinded pilot study, the results suggest patients who received a single dose of intravenous ondansetron had significantly decreased nausea and vomiting during cryopreserved stem cell infusions. A larger, double-blinded study is warranted.

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END-OF-LIFE AND PALLIATIVE CARE IN BMT: NURSES NEED EDUCATION AND SUPPORT

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Recently, the Blood and Marrow Transplant (BMT) program at our NCI-designated Cancer Center increased its inpatient capacity by 80% and its nursing staff by 50%. Concurrently, treatment protocols expanded and patients with co-morbidities increased. These factors have resulted in increased morbidity, mortality, and length of stay and increased compassion fatigue among old and new BMT nurses.

Two new BMT nurses expressed concern regarding peers' compassion fatigue and a desire to educate about palliative care (PC) and end of life (EOL). Partnering with the Clinical Nurse Specialist (CNS) and Patient Care Manager, staff nurses initiated an EOL/PC Committee with the goals of staff education and support. Education has included journal article review and guests such as the Ethics Committee Chair, Hospice Liaisons, and Palliative Care Nurse Experts. Members are encouraged to obtain ELNEC (End-of-Life Nursing Education Consortium) or similar training. Attendees receive support through an open forum at each monthly meeting to share concerns about patient deaths, life-threatening complications or goals of care. Meeting discussions are facilitated by a CNS certified in Hospice and Palliative Care, ELNEC educators, hospice nurses, social worker, and Psychiatric CNS. Discussions focus on expression of emotions, problem-solving and nurse's role at EOL.

EOL/PC Committee has grown from 4 to 27% of unit staff since April 2009. Beyond direct education and support at meetings, issues raised have resulted in care improvement initiatives. Outcomes include peer education regarding post-mortem care, collaboration with Medical Leadership to improve communication about futile care and presentation at Grand Rounds to elevate awareness of EOL issues. Ongoing initiatives are to develop a tool to assess futility of care, to identify a Palliative Care Resource Nurse for each shift and to enhance nurse's role in completion of Advance Directives.

The unit-based BMT EOL/PC Committee has successfully raised awareness and created a forum for discussion of PC and EOL issues. Though we all strive for cure, we need to acknowledge and support the reality that all transplants are not successful and are associated with emotionally and physically devastating complications for the patient, their family and BMT staff. On our unit, the BMT EOL/PC Committee is a safe venue for nursing staff to acknowledge this reality as well as an arena to improve the PC and EOL that we provide.